



## THE PUSH TOWARD MORE SUSTAINABLE SOLUTIONS

As pressure mounts for the poultry industry to become more energy efficient and sustainable, the search for effective and affordable solutions intensifies. Companies are finding that some of their seemingly small, innocuous daily choices have the potential to result in significant positive net changes for producers, integrators and the environment.

A University of Georgia study, which evaluated the carbon footprint of poultry farms in the U.S., showed the biggest contributor to greenhouse gas (GHG) emissions (68%) from broiler farms was from the use of fossil fuels, particularly propane gas used for heating during brooding and cold weather<sup>1</sup>.

While improvements in growth rate and feed efficiency, and efforts to increase the energy efficiency of broiler houses support decreased emissions, there is a significant amount of untapped opportunity – much of which can be found in the manure.

### MANAGE MANURE, REDUCE EMISSIONS

About 10% of poultry carbon emissions are from manure. Given that approximately 10.2 million tons of poultry litter is generated annually in the U.S., manure management presents significant, untapped opportunity in sustainability efforts.

In addition to methane and nitrous oxide, ammonia is also produced from manure and accounts for 39% of the total ammonia in the atmosphere, by some accounts<sup>2</sup>. Ammonia is a costly problem in broiler houses in several ways that also contribute GHG emissions. Ammonia:

- Increases ventilation and fuel costs
- Decreases performance and feed efficiency
- Negatively impacts bird health and welfare

<sup>1</sup> <https://extension.uga.edu/publications/detail.html?number=B1382#title3>

<sup>2</sup> Clarisse et al. (2009)

# PLT® LITTER AMENDMENT SUPPORTS SUSTAINABILITY AT MULTIPLE LEVELS

Applying PLT lowers litter pH and eliminates ammonia for improved air quality while increasing the nutrient value of litter. But that is just the beginning.

## REDUCE VOC EMISSIONS

Poultry manure contains five oxygenated volatile organic compounds (VOCs): ethanol, methanol, methylamine, dimethylamine and trimethylamine.

PLT use reduces VOC emissions by at least about 20% with some **decreases of 30% to 40%**.

## REDUCE AMMONIA EMISSIONS

100 lbs. of PLT binds **14 lbs. of ammonia**.

## INCREASE VALUE OF LITTER AS FERTILIZER

PLT-treated litter retains more plant-available nitrogen, increasing its value as a fertilizer source and decreasing the need for fertilizer production.

Every 100 lbs. of applied PLT generates **55 lbs. of ammonium sulfate fertilizer**.

## LESS FUEL, LESS CO<sub>2</sub>

Without the need to ventilate ammonia, fuel use decreases.

1-ton applied PLT = **decrease of 665 gallons propane = CO<sub>2</sub> emission reduction of 16,000 lbs.**<sup>3</sup> (winter)

## KEEP AMMONIA FROM ROBBING FEED CONVERSION

Ammonia can have severe detrimental effects on feed conversion and weight gain with 50 ppm of ammonia reducing FCR by as much as 10 points.

1 point FC = +/- 1,100 tons of corn reduced in 1 year of feed production – an **annual savings of \$250,000\***

## KILOWATT REDUCTION

1 ton of applied PLT reduces energy usage by 4,350 kWh.

## AVOID PHOSPHORUS-BASED LIMITATIONS

In areas where phosphorus levels of manure can limit its land application as fertilizer due to runoff concerns, PLT stands above the competition by maintaining **lower Total-P** over time due to ammonium sulfate accumulation.



*\*Estimated based on 6.5-lb bird, starting @ 1.7 FCR (1.69 target); 65% corn diet, 1 million birds/week treated with PLT; 40 bushels of corn = 1 ton; corn currently priced @ \$225/ton*

*<sup>3</sup>Dr. Matthew J. Franchetti and Somik Ghose, Comparative Life Cycle Greenhouse Gas Emission and Benefits from Poultry Litter Treatment (PLT®) Application in Poultry House Operation Sustainability Research Group, Department of Mechanical, Industrial and Manufacturing Engineering, The University of Toledo*



## TAKE CREDIT WHERE CREDIT'S DUE

When you use PLT in your complexes, it contributes greatly to your company sustainability goals. If over the course of a year, your complexes applied **1,000 tons / 2,000,000 pounds** of PLT® - Poultry Litter Treatment, you could claim the following.

### AMMONIA EMISSION REDUCTION

You would reduce ammonia emissions into the environment by **140 total tons** over the course of the year.

### CO<sub>2</sub> EMISSIONS REDUCTION

Given that **1 ton** of applied PLT reduces propane use in winter by **665 gallons**, which equates to **16,000 lbs.** CO<sub>2</sub> emissions, and assuming that propane costs **\$2.50 per gallon**, you would reduce CO<sub>2</sub> emissions by **8,100 tons** at a savings of **\$831,250** on fuel in cold weather months\*.

### ENERGY SAVINGS

Given that **1 ton** of applied PLT reduces energy usage by **4,350 kWh** and the average cost of kilowatt hours is about **0.1609** in 2023, your application of PLT could reduce your energy costs by **\$699,915**.

### THE SOCIAL COST OF CARBON

The value of the damage caused by CO<sub>2</sub> emissions or the value of reducing emissions is defined by the EPA. Based on their parameters, the emissions reductions from the defined PLT use above is valued at **\$413,000**.

## THE BOTTOM LINE

Propane savings → \$831,250

kWh savings → \$699,915

Social Value → \$413,000

Environmental Return on Investment → 3.65 ROI

### Safe. Effective. Sustainable.

PLT is a non-hazardous, EPA Safer Choice product that is 100% biodegradable, and is the only amendment that can be applied around birds. Safe for people. Safe for birds. Better for the environment.

\*assuming six cold weather months annually

\*\*The EPA and other federal agencies use estimates of the social cost of carbon to value the climate impacts of rulemakings. It is a measure, in dollars, of the long-term damage done by a ton of carbon dioxide (CO<sub>2</sub>) emissions in a given year. This dollar figure also represents the value of damages avoided for a small emission reduction (i.e. the benefit of a CO<sub>2</sub> reduction). In 2022, one ton of CO<sub>2</sub> emissions was valued at \$51.



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